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A fascinating field and a pragmatic enterprise: Education in the information field

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I. INTRODUCTION

Library and information science is a fascinating field. It is basically about helping people find the books, articles, pictures, music, information etc. they need or would like to read or experience. Information specialists help students, researchers and everybody else to find the documents they need in order to solve tasks, including writing thesis and research papers. Such documents used to be kept in physical libraries, archives and museums but are increasingly available in digital form, sometimes free, sometimes with toll access. We can call it “the information ecology” and information specialists are those people who study this universe in order to help people to utilize it optimally for the specific purposes that people have.

Although much information is available in digital form the study of information is not identical with the study of computers, information technology or communication technology. Rather, library and information science is about knowledge production in society and how this knowledge is materialized in documents, including in digital documents, and how it is organized, labeled and managed in order to serve different groups and individuals (this definition is adapted from Jack Andersen, 2011). Information science is about what Google and Wikipedia can do for you, but it is also about what Google and Wikipedia cannot do for you, and what else needs to be consulted. It is about how to improve access to information by progress both in computer-based retrieval and in forms of information services provided by information professionals. Such information services include the teaching of ‘information literacy’ to students and helping professionals, for example, medical doctors, to carry out evidence-based practice.

Another way to describe the difference between computer science and information science is to say that for the first interaction between humans

and computers is a core topic. In the case of information science it is, in fact, the interaction between people and the whole information ecology. This makes an important difference, although the computer is certainly a central tool in information science¹.

How should we educate people in this domain, and what are the major challenges, tensions and problems?

2. FROM PROFESSIONAL EDUCATION TO AN ACADEMIC DISCIPLINE

Bibliotekshögskolan/The Swedish School of Library and Information Science was founded in Borås in 1972 (the continuation of a school in Stockholm, founded in 1926). It was not, however, alone, we had library schools all over the world, and one of the best known is Melvil Dewey's *School of Library Economy*, which opened its doors at Columbia College in New York City in 1887. In 1964 the first library school in the USA included information science in its educational program (and in its title) and in the coming years most library schools changed their names to schools of library and information science (in Denmark this transition occurred in 1997, in Sweden 1991). Today there is a new trend toward using the term "i-schools".

There are two important developments associated with this trend: 1) a movement from the library as an institution towards (bibliographic) information systems and services generally 2) a movement from professional education in a multitude of relevant disciplines towards the development of an academic discipline in its own right (and, by implication, the teaching of this discipline).

The general viewpoint is that in second half of the 20th century library education became "academic" as opposed to its former "professional" nature. This is, however, a somewhat simplistic statement: As Miksa commented:

"Early library education, including Melvil Dewey's School of Library Economy at Columbia College, has traditionally been thought to have emphasized vocational-technical skills rather than substantive intellectual issues. New evidence for the first two lecture sessions of Dewey's school raises questions about that view. The schedule of the school, its faculty (including regular Columbia College professors), and the way the school's topical content of library economy and bibliography was approached strongly suggest an educational venture with unexpected intellectual substance". (Miksa, 1988, p. 249).

¹ This introduction was originally published in Hjørland (2012a, p. xxi-xxii).

My own experience (a century later) is also that although the teaching of vocational-technical skills has often dominated, serious scholarly research and teaching has also taken place during the “vocational phase” of the history of education in LIS. Therefore the influence of “academization” (i.e. *formal* research) should not be exaggerated: It was not something that changed the field overnight when it was formally established (and actually the “academization” may itself *also* have had negative effects on scholarliness in the field by producing much pseudo-knowledge which has caused more confusion than clarification).

A dominating model for education during the vocational phase was to consider each process in libraries and to provide teaching in each of these:

- Selection and acquisition of books and other materials
- Descriptive cataloging of library materials
- Classification, indexing, and annotation of library materials
- Reference work, bibliography, and documentation
- User education / Information literacy
- Special target groups and subjects: Children, music, science, humanities...
- Library administration
- Etc.

In addition some subjects, which are not connected with special functions in libraries, for example, library history, book history and broader cultural and social perspectives

One last comment about this “professional” education: The *public libraries* were the predominant market for educated librarians and this reflected on (?) on the subjects taught. In academic libraries people educated in schools of librarianship competed with other groups, including library assistants and subject specialists. In public libraries our candidates (at least in Denmark) had until recently a de facto and de jure monopoly on jobs as librarians in public libraries. This is not so any longer: Public librarians may (as research libraries have long done) employ, for example, historians as librarians (in addition we see in Sweden and in Denmark a competition between universities to develop different programs and courses in the LIS field).

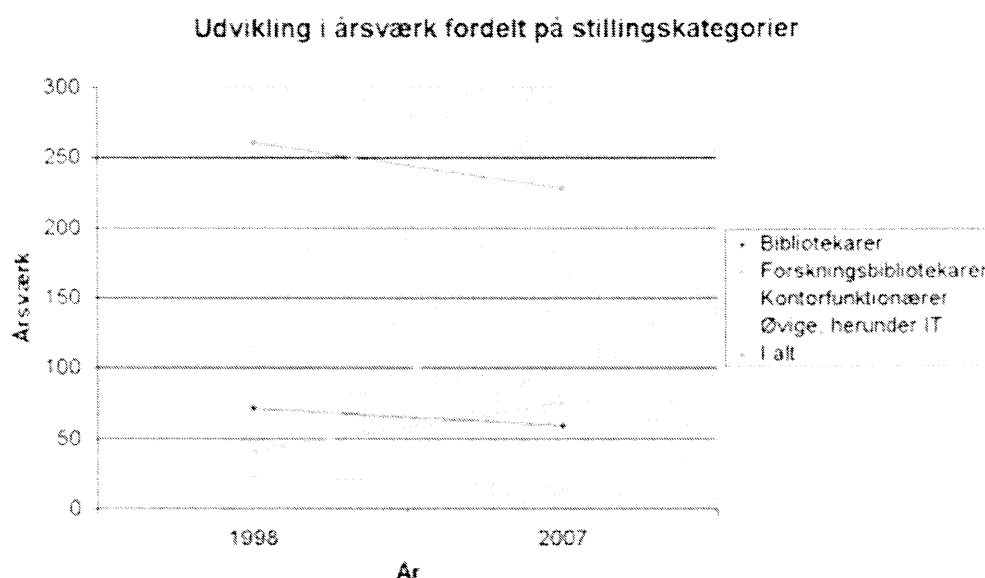
The situation is thus more difficult today, but perhaps healthier, too: Library and information professionals now have to demonstrate real qualifications (not just rely on the monopoly) and increasingly they have to

focus on their special competency in services within teams of differently trained professionals.

There is still, however, in many contexts, a problematic ideology concerning the expectation that every librarian should be able to answer every and any question from users.

3. EFFECTS OF DIGITALIZATION

One effect of digitalization is that users have improved access to information with less need for help from people educated in LIS. Fig. 1 shows an increase in computer specialists and a decrease in all other professions in one of the main academic libraries in Denmark. The author, the head of the State Library, seems to be proud. His management is efficient: More documents are being transmitted with lower budgets. We may ask, however, whether we, as a field, have missed the opportunity to develop new jobs based on research and teaching within LIS?



In Hjørland (2011) I discuss the need for qualifications in relation to the following tasks:

1. material selection
2. document description with descriptive and administrative meta-data
3. subject indexing and classification
4. reference work and documentation
5. subject specific teaching of information searching and information literacy

6. construction of subject gateways (and “information architecture”)
7. communication with the relevant research environments, incl. supporting publication
8. metascientific research (including bibliometrics)
9. political work related to “free and equal access to information and knowledge”.

All these tasks are fundamentally changed because of digitalization and many of them will disappear if the library as a physical institution is “bypassed” by publishers, “digital libraries” or by open access.

We are now not just facing problems such as:

- “how to learn best to index a document”
- “How to select materials for libraries?”

But even

- “Do we need to index documents?” and “is it still important to know principles of indexing/document representation?” (Or may search engines do the task without any need for human indexing?)
- Do library professionals still have any role to play in materials selection? (Or may the principle of patron-driven acquisitions supplant the need of employed information specialists as material selectors? The principle of patron-driven acquisition has been formulated this way: “...to let library users find and identify desired documents prior to the library’s purchase of them, and for the library to pay only for what its patrons find and actually use” (Rick Anderson 2011).

These are two of many examples on how traditional tasks may disappear. What are the implications for our educational programs?

4. THE NEED FOR SELF-CRITICISM IN INFORMATION SCIENCE

My first answer is that no principle (or ideology) should stand unquestioned by scholars. This concerns the claim that algorithmic retrieval can outperform human indexing and that patrons themselves can decide which documents to buy without any assistance from information professionals. Such principles are debated in the literature and should be further examined at schools of LIS.

My second answer is to go back to the introduction about what information science is about. In order to help users navigate in the information ecology we need the same kind of knowledge as when we actually indexed documents and selected information sources for libraries – although at a more general level.

I believe that the same argument can be applied to most of the other endangered library functions: By study and teaching them on a certain theoretical level, we will gain the knowledge that is relevant to help users (but the narrow technical aspects of acquisition become less relevant or irrelevant in this perspective). The question is, of course, if we can agree on my introductory departure point?

5. INFORMATION, KNOWLEDGE, CULTURE

In Denmark our bachelor and master programs are referred to as "information science and cultural mediating" (although the translation on the site in English at the time of writing was simply "Library and Information Science").

Do we have one or two or more disciplines or fields? Are we speaking of one program or a mixture of educations?

My suggestion is that information science is badly in need of a theoretical foundation and that this foundation has to be culturally based. However, our programs are perhaps too much a patchwork of cultural, informational and other fields without sufficient integration and progression. An educational program cannot consist of a mixture of different disciplines without being based on a view of how they support a common goal (such as, for example, the one outlined in my introduction). This is connected with problems concerning the status of information science as an international discipline (or an international interdisciplinary field).

Why is our field, for example, termed "information science"? Is it about "information"? If we consider the problems with which we are dealing (e.g. evaluating documents, assigning metadata to documents, retrieving documents etc.), I believe "semiotics" would be a better theoretical frame compared to "information theory" and "sign" would be a better core term than "information" (although the semiotics literature does not answer, for example, the problems of metadata).

I do not say that a course in semiotics would directly make our students more competent in the problems of library and information science, of course not. I am just proposing that it is a theoretical frame that in the longer term will improve the field. The fact that it unites information science and cultural studies is also a very attractive attribute.

There are other theories of knowledge that may equally contribute to the foundation of the field.

If we again consider my introductory description of the aim of our field, I believe that the more computer-oriented as well as the more culture-ori-

ented people in the field (and the rest of us) can identify themselves within this framework. (True?).

To organize, find and communicate information, knowledge and culture has been fundamentally changed due to developments in IT. What are our specific tasks if we compare with computer science?

Let us finish by considering search engines. My claim is that any search engine is a cultural-political agent: A search engine always will make some documents more visible more than other documents (although, of course there is no arbitrary relation between queries and search results). No search algorithm and no knowledge organizing system can ever be neutral in relation to what is found. How a search engine is constructed is a technical question, but criteria for what should be found (and what is “relevant”) are questions of cultural policy and related to theories of knowledge. The technical and the epistemological/cultural cannot be separated. We have to know how specific technical decisions influence what is found and we have to do research on languages, discourses, domains, genres etc. which allow us to improve systems in ways that are more in accordance with our cultural and epistemological values.

6. INFORMATION SPECIALISTS, COMPUTER SPECIALISTS, SUBJECT SPECIALISTS

Information specialists have to find and define the roles, jobs and identities, of computer specialists and subject specialists, among others.

If an information scientist is required to answer an advanced user question, can he do so on the basis of subject knowledge and without the necessary technical knowledge? (NO!)

A problem in LIS is a dualism which separates subject knowledge from knowledge about information systems.

It is in the integration of these kinds of knowledge that the core knowledge emerges. Just as you can't learn Chinese medicine by taking a course in Chinese and one in medicine and then “combining your knowledge”, you cannot know how to use medical databases, for example, by studying medicine and databases as separate subjects.

The difference between subject specialists and information specialists is that the first have a “bottom-up” approach to information systems, while information specialists have a “top-down” approach: Subject specialists start by learning a subject and may from this point of departure learn broader aspects of knowledge, information and information retrieval. Information specialists, on the other hand, start by learning broader perspec-

tives on knowledge, information and communication and may specialize towards specific domains.

Researchers are familiar with specific information sources in their own fields, but information specialists are knowledgeable in general disciplinary structures, bibliographical databases, reference materials, etc.

7. CONCLUSION

Information science is today fragmented and in need of clear goals and a satisfactory theoretical frame. There is no satisfactory “textbook of information science” today. There are many metatheoretical writings, and the specific literature on different kinds of systems is prolific, but the connection has not yet been made. Most researchers in the field have their own specialisations and approaches but do not have an ecological approach (?) to the field as a whole.

There are strong centrifugal forces fragmenting the field and which tend to turn our educational programs into patchwork. Consequently, there is a need for stronger centripetal forces that will strengthen the coherence of our programs as well as the professional identities of our candidates (Cronin, 2012).

This year (2012) Bawden and Robinson published their *Introduction to information science*. It is a fine, representative book of the field, which furthermore demonstrates what we need to do on a collective level:

We need to relate library and information science to theories of knowledge and we need to go back and forth between general theory and specific problems. Bawden & Robinson place their faith in the philosophy of information developed by Luciano Floridi, however, this philosophy has not hitherto been applied in the specific areas of LIS described in the rest of their book.

Two different fields cannot be combined in one educational program (information science and cultural mediation): What is required is the building of one field and one education. It should be theoretically coherent with a basis in cultural studies.

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